

A FEEDBACK PROCESS TO MODEL CP UTILIZATION  
MULTI-PROCESSOR PERFORMANCE MODELS

ABSTRACT OF THE DISCLOSURE:

Feedback control algorithms for controlling a given simulation model which relates to a computer-program-based method and respective system for providing a feedback control for a given set of control quantities of a simulation model, comprising a plurality of iterated simulation runs each of which consumes a considerable amount of time. Each single run is performed with a setting of starting values for certain entry control quantities suited to control certain target quantities. The respective next setting of entry quantities is based on the value of the target quantities measured in the preceding simulation run. In order to provide for a fast convergence of the target quantities to a final, predetermined value, the following formula is applied:

$$\chi'_{n+1} = \frac{v_n}{1 + \rho_n(1 - v_n)} \quad (6a)$$

where

$$v_n = (n+1)\mu - n\mu_n \quad (6b)$$

$\mu$  is the final value of the target control quantity aimed at,  $\mu_n$  its value achieved up to iteration  $n$  of the simulation run and  $\rho_n$  is a suitable system parameter.  $\chi$  is a certain entry quantity suited to make  $\mu_n$  converge against  $\mu$ , and  $\chi'_{n+1}$  is the value of  $\chi$  to be chosen for the next iteration.